



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

Ref: 8P-W-GW

AUG 24 1998

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

#47
Ms. Kathy Turner
Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P. O. Box 1839
Hutchinson, Kansas 67504-1839

RE: UIC PERMIT MODIFICATION
Conversion of Additional Well to
Antelope Creek Waterflood
EPA Area Permit UT2736-00000
Duchesne County, Utah

Dear Ms. Turner:

Your letter of July 17, 1998, requesting that the following production well be converted to a Class II enhanced oil recovery well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #29-16	T 5 S - R 3 W Duchesne County, UT	#UT2736-04475

This additional well is within the boundary of the existing area permit for the Antelope Creek Waterflood (UT2736-00000), and this addition is made by permit modification according to the terms and conditions of that permit. Unless specifically mentioned in this Permit Modification, conversion is being made under the provisions of 40 CFR 144.33 and the terms and conditions of the original permit. The proposed well location, well schematic, conversion procedures, plugging and abandonment plan and schematic, submitted by your office, have been reviewed and approved as follows:

- (1) The **conversion** of this production well has been reviewed, and with modifications found satisfactory, therefore, no corrective action is required.
- (2) **Maximum injection pressure (Pmax)** - the permittee shall limit the maximum surface injection pressure (Pmax) to 2217 psig. **Permit provision have been made that allow the operator to request an increase or decrease in the injection pressure.**





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RE: UIC PE
Conver
Antelc
EPA Ar
Duches

Scan under
UT 20736-00000
66
Modification - Minor
Mod Approved 8/24/1998
Will need to link with
UT 20736-04475 in
new database also under
8/ Add Well to Area
Permit.

Dear Ms. Turner:

Your letter of July 17, 1998, production well be converted to a Class II enhanced oil well and added to the Antelope Creek Waterflood, as authorized under EPA Area Permit #UT2736-00000 is hereby granted.

<u>NAME</u>	<u>LOCATION</u>	<u>EPA WELL PERMIT NO.</u>
Ute Tribal #29-16	T 5 S - R 3 W Duchesne County, UT	#UT2736-04475

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The calculations for the fracture gradient was estimated from instantaneous shut-in pressures (ISIP's) observed during fracturing treatments performed on two (2) individually fraced zones within the Ute Tribal #29-16 well which established an average fracture gradient (Fg) of 0.913 psi/ft. This Fg is acceptable to the Environmental Protection Agency (EPA) and a theoretical maximum allowable surface injection pressure (Pmax), for this well, may be calculated as shown below:

$$P_{max} = [Fg - 0.433 (Sg)] d$$

Where: P_{max} = Maximum surface injection pressure at wellhead

d = 4619' shallowest perforations after conversion

Sg = Specific gravity of injected water

$$P_{max} = [0.913 - .433 (1.00)] 4619$$

$$P_{max} = 2217 \text{ psig}$$

Until such time as the permittee demonstrates that a fracture gradient other than 0.913 psi/ft applies to the disposal zones of this newly converted well, the maximum allowable wellhead injection pressure (P_{max}) for this well will be 2217 psig.

- (3) The **plugging and abandonment plan and schematic**, submitted by your office, has been reviewed, and approved.
- (4) As no cement bond log (CBL) is available to determine the effectiveness of annulus cement above the top perforations, the permittee shall run a CBL from plug back total depth (5806 feet) to 200 feet above top perforations (4619 feet). The CBL is an approved tool delineating confinement of the injectate to the permitted formation; see enclosure for CBL logging techniques and interpretation.

Prior to commencing injection into this well, permittee must fulfill permit condition Part II, C. 2. and have received **separate written authorization to inject by the Environmental Protection Agency**. In summary, these requirements for your newly permitted injection well are:

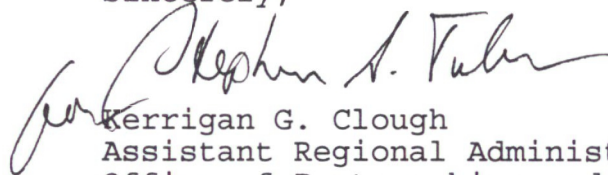
- (1) All conversion is complete and the permittee has submitted a completed **Well Rework Record (EPA Form 7520-12)**.

- (2) The pore pressure has been determined.
- (3) The well has successfully completed and passed a **mechanical integrity test, with pressure chart**; EPA form enclosed; and
- (4) Submitted a **CBL** with brief narrative identifying top of cement, for approval to insure adequate bonding.

All other provisions and conditions of the permit remain as originally issued July 12, 1994.

If you have any questions, please contact Mr. Chuck Williams at (303) 312-6625. Also, please direct the above requirements to Mr. Williams at the above letterhead address, citing **MAIL CODE 8P-W-GW**. Thank you for your continued cooperation.

Sincerely,



Kerrigan G. Clough
Assistant Regional Administrator
Office of Partnerships and
Regulatory Assistance

Enclosure: EPA MIT Form
Guidance; Cement Bond Logging Techniques and
Interpretation

cc: Mr. Ronald Wopsock, Chairman
Ute Indian Tribe

Ms. Elaine Willie, Environmental Director
Ute Indian Tribe

Norman Cambridge
BIA - Uintah & Ouray Agency

Mr. Jerry Kenczka
BLM - Vernal District Office

Mr. Gilbert Hunt
State of Utah Natural Resources
Division of Oil, Gas & Mining

#27
#20
#11
#12
#94

8/26/98 CW 3378C (Ute Tribal #29-16)
SENDER: AUG 27 1998

■ Complete items 1 and/or 2 for additional services.
 ■ Complete items 3, 4a, and 4b.
 ■ Print your name and address on the reverse of this form so that we can return this card to you.
 ■ Attach this form to the front of the mailpiece, or on the back if space does not permit.
 ■ Write "Return Receipt Requested" on the mailpiece below the article number.
 ■ The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):
 1. ☐ Addressee's Address
 2. ☐ Restricted Delivery
 Consult postmaster for fee.

3. Article Addressed to:
Ms. Kathy Turner
Geology/Petroleum Engineering Technician
Petroglyph Operating Company, Inc.
P.O. Box 1839
Hutchinson, KS 67504-1839

4a. Article Number
P 380 306 046

4b. Service Type
☐ Registered ☒ Certified
☐ Express Mail ☐ Insured
☐ Return Receipt for Merchandise ☐ COD

7. Date of Delivery
AUG 31 1998

5. Received By: (Print Name)
Charlene Green

6. Signature: (Addressee or Agent)
X Charlene Green

8. Addressee's Address (Only if requested and fee is paid)
SEP 4 1998

Is your RETURN ADDRESS completed on the reverse side?

PS Form 3811, December 1994

Thank you for using Return Receipt Service.

P 380 306 046

US Postal Service 8/26/98 CW 3378C
Receipt for Certified Mail
 No Insurance Coverage Provided.
 Do not use for International Mail (See reverse)

Sent to
Ms. Kathy Turner
 Street & Number
Geology/Petroleum Engineering Technician
 ZIP Code
Petroglyph Operating Company, Inc.
P.O. Box 1839
Hutchinson, KS 67504-1839

Certified Fee
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PS Form 3800, April 1995